Current Status of All Claims in the Application:

1. (Currently Amended) A stage assembly that holds a device, the stage assembly comprising:

a stage base;

a device table being movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis;

a carrier ~~including a carrier top~~ coupled to the device table and being movable relative to the device table;

a device holder that retains the device~~, the device holder including a holder bottom~~; and

a holder connector assembly that ~~directly~~ connects ~~the holder bottom of~~ the device holder to the ~~carrier top of the~~ carrier so that deformation of the carrier does not result in deformation of the device holder.

2. (Original) The stage assembly of claim 1 wherein the holder connector assembly includes a flexure.

3. (Original) The stage assembly of claim 2 wherein the holder connector assembly includes three spaced apart flexures.

4. (Original) The stage assembly of claim 1 wherein the holder connector assembly kinematically connects the device holder to the carrier.

5. (Original) The stage assembly of claim 1 wherein the holder connector assembly includes three spaced apart protrusions and three spaced apart receivers.

6. (Original) The stage assembly of claim 1 wherein the holder connector assembly includes a protrusion and a cone shaped receiver that receives the protrusion.

7. (Original) The stage assembly of claim 1 wherein the holder connector

assembly includes a fluid bearing assembly.

8. (Original) The stage assembly of claim 7 wherein the holder connector assembly includes three spaced apart, fluid bearing assemblies.

9. (Original) The stage assembly of claim 8 wherein each fluid bearing assembly includes a bearing body having a substantially triangular shaped cross-section and a pair of bearing pads.

10. (Original) The stage assembly of claim 9 wherein the holder connector assembly includes three spaced apart receivers.

11. (Original) The stage assembly of claim 10 wherein each of the receivers includes a groove having a substantially triangular shaped cross-section.

12. (Currently Amended) The stage assembly of claim 1 further comprising ~~a device table, and~~ a stage mover assembly that moves the device table~~, wherein the carrier is coupled to the device table~~.

13. (Original) The stage assembly of claim 12 wherein the stage mover assembly moves the device table with at least three degrees of freedom.

14. (Currently Amended) The stage assembly of claim 1 ~~further comprising a device table and~~ wherein the carrier rotates relative to the device table.

15. (Original) The stage assembly of claim 14 further comprising a lock that inhibits rotation of the carrier relative to the device table.

16. (Original) The stage assembly of claim 14 wherein the carrier and the device holder are rotated relative to the device table between a first position and a second position.

17. (Original) The stage assembly of claim 16 wherein the device holder is rotated at least approximately 25 degrees between the first position and the second position.

18. (Original) The stage assembly of claim 16 wherein the device holder is rotated at least approximately 180 degrees between the first position and the second position.

19. (Original) The stage assembly of claim 1 further comprising a bearing that allows for rotation of the carrier relative to the device table.

20. (Original) The stage assembly of claim 1 further comprising a holder damper assembly that dampens vibration between the device holder and the carrier.

21. (Original) The stage assembly of claim 20 wherein the holder damper assembly includes a first damping layer that covers at least a portion of one of the carrier and the device holder.

22. (Original) The stage assembly of claim 21 wherein the first damping layer is made of a viscoelastic material.

23. (Original) The stage assembly of claim 21 further comprising a constraining layer of material that covers at least a portion of the first damping layer.

24. (Original) The stage assembly of claim 20 wherein the holder damper assembly includes a first damping layer that covers at least a portion of the device holder and a second damping layer that covers at least a portion of the carrier.

25. (Original) The stage assembly of claim 24 wherein the first damping layer and the second damping layer are made of a viscoelastic material.

26. (Original) The stage assembly of claim 24 further comprising a constraining layer of material that covers at least a portion of one of the damping layers.

27. (Original) The stage assembly of claim 20 wherein the holder damper assembly includes a magnet that is secured to the device holder, the magnet generating flux that passes through the carrier to dampen vibration of the device holder.

28. (Original) The stage assembly of claim 20 wherein the holder damper assembly includes a magnet that is secured to the carrier, the magnet generating flux that passes through the device holder to dampen vibration of the device holder.

29. (Original) The stage assembly of claim 20 wherein the holder damper assembly utilizes squeeze film type damping.

30. (Original) The stage assembly of claim 29 wherein the holder damper assembly includes a damping unit that includes a first damping component that is secured to the device holder and a second damping component that is secured to the carrier, wherein a small gap exists between the first damping component and the second damping component.

31. (Original) The stage assembly of claim 1 further comprising a holder mover that engages the carrier and rotates the carrier and the device holder.

32. (Original) An exposure apparatus including the stage assembly of claim 1.

33. (Original) A device manufactured with the exposure apparatus according to claim 32.

34. (Original) A wafer on which an image has been formed by the exposure apparatus of claim 32.

35. (Currently Amended) A stage assembly that holds a device, the stage assembly comprising:

a stage base;

a device table being movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis;

a carrier coupled to the device table and movable relative to the device table;

a device holder that retains the device;

a holder connector assembly that connects the device holder to the carrier so that deformation of the carrier does not result in deformation of the device holder; and

a holder damper assembly connected to at least one of the device holder and the carrier, the holder damper damping vibration between the device holder and the carrier.

36. (Original) The stage assembly of claim 35 wherein the holder connector assembly includes a flexure.

37. (Original) The stage assembly of claim 36 wherein the holder connector assembly includes three spaced apart flexures.

38. (Original) The stage assembly of claim 35 wherein the holder connector assembly kinematically connects the device holder to the carrier.

39. (Original) The stage assembly of claim 35 wherein the holder connector assembly includes three spaced apart protrusions and three spaced apart receivers.

40. (Original) The stage assembly of claim 35 wherein the holder connector assembly includes a fluid bearing assembly.

41. (Original) The stage assembly of claim 40 wherein the holder connector assembly includes three spaced apart, fluid bearing assemblies.

42. (Original) The stage assembly of claim 41 wherein each fluid bearing assembly includes a bearing body having a substantially triangular shaped cross-section and a pair of bearing pads.

43. (Original) The stage assembly of claim 42 wherein the holder connector assembly includes three spaced apart receivers.

44. (Original) The stage assembly of claim 43 wherein each of the receivers includes a groove having a substantially triangular shaped cross-section.

45. (Currently Amended) The stage assembly of claim 35 ~~further comprising a device table and~~ wherein the carrier rotates relative to the device table.

46. (Original) The stage assembly of claim 45 further comprising a lower damper assembly for damping vibration between the carrier and the device table.

47. (Original) The stage assembly of claim 45 further comprising a stage mover assembly that moves the device table.

48. (Original) The stage assembly of claim 45 further comprising a lock that inhibits rotation of the carrier relative to the device table.

49. (Original) The stage assembly of claim 45 wherein the carrier and the device holder are rotated relative to the device table between a first position and a second position.

50. (Original) The stage assembly of claim 49 wherein the device holder is rotated at least approximately 25 degrees between the first position and the second position.

51. (Original) The stage assembly of claim 49 wherein the device holder is rotated at least approximately 180 degrees between the first position and the second position.

52. (Original) The stage assembly of claim 35 wherein the holder damper assembly includes a first damping layer that covers at least a portion of one of the carrier and the device holder.

53. (Original) The stage assembly of claim 52 wherein the first damping layer is made of a viscoelastic material.

54. (Original) The stage assembly of claim 52 further comprising a constraining layer of material that covers at least a portion of the first damping layer.

55. (Original) The stage assembly of claim 35 wherein the holder damper assembly includes a first damping layer that covers at least a portion of the device holder and a second damping layer that covers at least a portion of the carrier.

56. (Original) The stage assembly of claim 55 wherein the first damping layer and the second damping layer are made of a viscoelastic material.

57. (Original) The stage assembly of claim 56 further comprising a constraining layer of material that covers at least a portion of one of the damping layers.

58. (Original) The stage assembly of claim 35 wherein the holder damper assembly includes a damping layer that covers at least a portion of the holder connector assembly.

59. (Original) The stage assembly of claim 35 wherein the holder damper assembly includes a magnet that is secured to the device holder, the magnet generating flux that passes through the carrier to dampen vibration of the device holder.

60. (Original) The stage assembly of claim 35 wherein the holder damper assembly includes a magnet that is secured to the carrier, the magnet generating flux that passes through the device holder to dampen vibration of the device holder.

61. (Original) The stage assembly of claim 35 wherein the holder damper assembly utilizes squeeze film type damping.

62. (Original) The stage assembly of claim 61 wherein the holder damper assembly includes a damping unit that includes a first damping component that is secured to the device holder and a second damping component that is secured to the carrier, wherein a small gap exists between the first damping component and the second damping component.

63. (Original) An exposure apparatus including the stage assembly of claim 35.

64. (Original) A device manufactured with the exposure apparatus according to claim 63.

65. (Original) A wafer on which an image has been formed by the exposure apparatus of claim 63.

66. (Currently Amended) A stage assembly that holds a device, the stage assembly comprising:

a device table;

a carrier that is coupled to the device table, the carrier rotating relative to the device table at least approximately five degrees between a first position and a second position;

a device holder that retains the device; and

a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a flexure.

67. (Original) The stage assembly of claim 66 wherein the holder connector assembly includes three spaced apart flexures.

68. (Original) The stage assembly of claim 66 wherein the holder connector assembly kinematically connects the device holder to the carrier.

69. (Canceled)

70. (Original) The stage assembly of claim 69 further comprising a lock that inhibits rotation of the carrier relative to the device table.

71. (Currently Amended) The stage assembly of claim 69 wherein the carrier and the device holder are rotated relative to the device table between [[a]] the first position and [[a]] the second position.

72. (Original) The stage assembly of claim 71 wherein the device holder is rotated at least approximately 25 degrees between the first position and the second position.

73. (Original) The stage assembly of claim 71 wherein the device holder is rotated at least approximately 180 degrees between the first position and the second position.

74. (Original) The stage assembly of claim 66 further comprising a holder damper assembly that dampens vibration between the device holder and the carrier.

75. (Original) The stage assembly of claim 74 wherein the holder damper assembly includes a first damping layer that covers at least a portion of one of the carrier and the device holder.

76. (Original) The stage assembly of claim 75 wherein the first damping layer is made of a viscoelastic material.

77. (Original) The stage assembly of claim 75 further comprising a constraining layer of material that covers at least a portion of the first damping layer.

78. (Original) The stage assembly of claim 74 wherein the holder damper assembly includes a first damping layer that covers at least a portion of the device holder and a second damping layer that covers at least a portion of the carrier.

79. (Original) The stage assembly of claim 74 wherein the holder damper assembly includes a magnet that is secured to the device holder, the magnet generating flux that passes through the carrier to dampen vibration of the device holder.

80. (Original) The stage assembly of claim 74 wherein the holder damper assembly includes a magnet that is secured to the carrier, the magnet generating flux that passes through the device holder to dampen vibration of the device holder.

81. (Original) The stage assembly of claim 74 wherein the holder damper assembly utilizes squeeze film type damping.

82. (Original) The stage assembly of claim 66 wherein the flexure extends directly between a carrier top of the carrier and a holder bottom of the device holder.

83. (Original) An exposure apparatus including the stage assembly of claim 66.

84. (Original) A device manufactured with the exposure apparatus according to claim 83.

85. (Original) A wafer on which an image has been formed by the exposure apparatus of claim 83.

86. (Currently Amended) A stage assembly that holds a device, the stage assembly comprising:

a device table that is movable along a first axis and along a second axis that is orthogonal to the first axis;

a carrier that is coupled to the device table and moves relative to the device table;

a device holder that retains the device; and

a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a fluid bearing.

87. (Original) The stage assembly of claim 86 wherein the holder connector assembly kinematically connects the device holder to the carrier.

88. (Original) The stage assembly of claim 86 wherein the holder connector assembly includes three spaced apart, fluid bearing assemblies.

89. (Original) The stage assembly of claim 88 wherein each fluid bearing assembly includes a bearing body having a substantially triangular shaped cross-section and a pair of bearing pads.

90. (Original) The stage assembly of claim 89 wherein the holder connector assembly includes three spaced apart receivers for receiving each bearing body.

91. (Original) The stage assembly of claim 90 wherein each of the receivers includes a groove having a substantially triangular shaped cross-section.

92. (Currently Amended) The stage assembly of claim 86 ~~further comprising a device table and~~ wherein the carrier rotates relative to the device table.

93. (Original) The stage assembly of claim 92 further comprising a lock that inhibits rotation of the carrier relative to the device table.

94. (Original) The stage assembly of claim 92 wherein the carrier and the device holder are rotated relative to the device table between a first position and a second position.

95. (Original) The stage assembly of claim 94 wherein the device holder is rotated at least approximately 25 degrees between the first position and the second position.

96. (Original) The stage assembly of claim 94 wherein the device holder is rotated at least approximately 180 degrees between the first position and the second position.

97. (Original) The stage assembly of claim 86 further comprising a holder damper assembly that dampens vibration between the device holder and the carrier.

98. (Original) The stage assembly of claim 97 wherein the holder damper assembly includes a first damping layer that covers at least a portion of one of the carrier and the device holder.

99. (Original) The stage assembly of claim 97 wherein the holder damper assembly includes a first damping layer that covers at least a portion of the device holder and a second damping layer that covers at least a portion of the carrier.

100. (Original) The stage assembly of claim 97 wherein the holder damper assembly includes a magnet that is secured to the device holder, the magnet generating flux that passes through the carrier to dampen vibration of the device holder.

101. (Original) The stage assembly of claim 97 wherein the holder damper assembly includes a magnet that is secured to the carrier, the magnet generating flux that passes through the device holder to dampen vibration of the device holder.

102. (Original) The stage assembly of claim 97 wherein the holder damper assembly utilizes squeeze film type damping.

103. (Original) An exposure apparatus including the stage assembly of claim 86.

104. (Original) A device manufactured with the exposure apparatus according to claim 103.

105. (Original) A wafer on which an image has been formed by the exposure apparatus of claim 103.

106. (Original) A method for making a stage assembly that holds a device, the method comprising the steps of:

providing a stage base;

providing a device table that is ~~supported movably~~ movable along a first axis and along a second axis that is orthogonal to the first axis relative to the stage base;

connecting a carrier to the device table, the carrier being movable relative to the device table; and

connecting a device holder that retains the device to the carrier so that deformation of the carrier does not result in deformation of the device holder.

107. (Original) The method of claim 106, wherein the step of connecting the device holder includes the step of securing the device holder to the carrier with a flexure.

108. (Original) The method of claim 106, wherein the step of connecting the device holder includes the step of kinematically securing the device holder to the carrier.

109. (Original) The method of claim 107, wherein the flexure extends between the device holder and the carrier.

110. (Original) The method of claim 106 wherein the step of connecting the device holder includes the step of creating a fluid bearing between the device holder and the carrier.

111. (Original) The method of claim 110 wherein the step of connecting the device holder includes the step of providing three spaced apart, fluid bearing assemblies, each fluid bearing assembly including a bearing body having a substantially triangular shaped cross-section and a pair of bearing pads.

112. (Original) The method of claim 111 wherein the step of connecting the device holder includes the step of providing three spaced apart receivers for receiving each bearing body, each of the receivers includes a groove having a substantially triangular shaped cross-section.

113. (Original) The method of claim 106, further comprising the step of connecting a stage mover assembly to the device table.

114. (Original) The method of claim 106 wherein the step of connecting a carrier includes the step of supporting the carrier above the device table with a bearing that allows for rotation of the carrier relative to the device table.

115. (Original) The method of claim 114, wherein the rotation of the carrier is inhibited selectively relative to the device table.

116. (Original) The method of claim 106, further comprising the step of connecting a holder damper assembly to at least one of the device holder and the carrier to dampen vibration between the device holder and the carrier.

117. (Currently Amended) The method of claim ~~106, further comprising~~ 116 wherein the step of connecting the holder damper assembly includes the step of covering at least a portion of one of the carrier and the device holder with a first damping layer to dampen vibration between the device holder and the carrier.

118. (Currently Amended) The method of claim ~~106, further comprising~~ 116 wherein the step of connecting the holder damper assembly includes the step of securing a magnet to at least one of the device holder and the carrier to dampen vibration between the device holder and the carrier.

119. (Original) The method of claim 116, wherein the holder damper assembly includes squeeze film type damping.

120. (Original) A method for making an exposure apparatus that forms an image on an object, the method comprising the steps of:

providing an irradiation apparatus that irradiates the object with radiation to form image on the object; and

providing the stage assembly made by the method of claim 106.

121. (Original) A method of making a wafer utilizing the exposure apparatus made by the method of claim 120.

122. (Original) A method of making a device including at least the exposure process: wherein the exposure process utilizes the exposure apparatus made by the method of claim 120.

123. (Currently Amended) A stage assembly that holds a device, the stage assembly comprising:

a stage base;

a device table that is movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis;

a device holder that retains the device, the device holder being coupled to the device table, the device holder rotating relative to the device table at least approximately five degrees; and

a holder damper assembly for damping vibration between the device holder and the device table.

124. (Original) The stage assembly of claim 123 wherein the holder damper assembly is connected to at least one of the device holder and the device table.

125. (Original) The stage assembly of claim 123 further comprising a rotation assembly that couples the device holder to the device table, the rotation assembly allowing for rotation of the device holder relative to the device table.

126. (Currently Amended) The stage assembly of claim 123 wherein the device holder rotates relative to the device table at least approximately ten degrees.

127. (Original) The stage assembly of claim 123 further comprising a stage mover assembly that moves the device table.

128. (Original) The stage assembly of claim 123 further comprising a lock that inhibits rotation of the device holder relative to the device table.

129. (Original) The stage assembly of claim 123 wherein the device holder rotates relative to the device table between a first position and a second position.

130. (Original) The stage assembly of claim 129 wherein the device holder rotates at least approximately 25 degrees between the first position and the second position.

131. (Original) The stage assembly of claim 123 wherein the holder damper assembly includes a first damping layer that covers at least a portion of one of the device table and the device holder.

132. (Original) The stage assembly of claim 131 wherein the first damping layer is made of a viscoelastic material.

133. (Original) The stage assembly of claim 131 further comprising a constraining layer of material that covers at least a portion of the first damping layer.

134. (Original) The stage assembly of claim 123 wherein the holder damper assembly includes a first damping layer that covers at least a portion of the device holder and a second damping layer that covers at least a portion of the device table.

135. (Original) The stage assembly of claim 134 wherein the first damping layer and the second damping layer are made of a viscoelastic material.

136. (Original) The stage assembly of claim 134 further comprising a constraining layer of material that covers at least a portion of one of the damping layers.

137. (Original) The stage assembly of claim 123 wherein the holder damper assembly includes a magnet that is secured to the device holder, the magnet generating flux that passes through the device table to dampen vibration of the device holder.

138. (Original) The stage assembly of claim 123 wherein the holder damper assembly includes a magnet that is secured to the device table, the magnet generating flux that passes through the device holder to dampen vibration of the device holder.

139. (Original) The stage assembly of claim 123 wherein the holder damper assembly utilizes squeeze film type damping.

140. (Original) The stage assembly of claim 139 wherein the holder damper assembly includes a damping unit that includes a first damping component that is secured to the device holder and a second damping component that is secured to the device table, wherein a small gap exists between the first damping component and the second damping component.

141. (Original) The stage assembly of claim 123 further comprising a carrier that couples the device holder to the device table.

142. (Original) The stage assembly of claim 123 wherein the holder damper assembly is connected to at least one of the device holder, the carrier and the device table.

143. (Original) An exposure apparatus including the stage assembly of claim 123.

144. (Original) A device manufactured with the exposure apparatus according to claim 143.

145. (Original) A wafer on which an image has been formed by the exposure apparatus of claim 143.

REMARKS

Claims 1-68 and 70-145 are pending in the above-captioned patent application after this amendment. Claims 1-145 have been rejected.

The Applicants respectfully disagree with the rejection of claims 1-145. However, the Applicants have amended claims 1, 12, 14, 35, 45, 66, 71, 86, 92, 106, 117, 118, 123 and 126, and canceled claim 69 without prejudice with this amendment for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office (65 Fed. Reg. 54603), and/or to clarify what the Applicants regard as the present invention.

Support for the amendments to claims 1, 12, 14, 35, 45, 66, 71, 86, 92, 106, 117, 118, 123 and 126 can be found throughout the originally filed specification. In particular, support for the amendments to claims 1, 12, 14, 35, 45, 66, 71, 86, 92, 106, 117, 118, 123 and 126 can be found in the specification at page 10, lines 3-7, at page 10, line 31 through page 11, line 14, at page 12, lines 24-32, at page 13, line 27 through page 14, line 8, at page 14, lines 18-25, at page 16, lines 10-21, at page 17, lines 3-18, in Figures 1, 2A, 4A, 6C, 6E and 6F, and in the originally filed claims.

No new matter is believed to have been added by this amendment. Reconsideration of the pending application is respectfully requested.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-6, 12-19, 31-34, 66-73, 82-85, 106-109, 113-115, 120-130, 137, 138, 140, 141 and 143-145 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Horikawa et al. (U.S. Patent No. 5,991,005). The Applicants respectfully submit that the rejection of claims 1, 66, 106 and 123, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner contends that "Horikawa discloses in Fig. 8, a method for making a s[t]age assembly and a stage assembly that holds a device (W) the stage assembly comprising a carrier (230), a device holder (240) that retains the device, a holder connector assembly (60, 52) that connects the holder bottom to the carrier top so that defo[r]mation of the carrier does not result in deformation of the device holder (col. 12, lines 42-64). The connector assembly includes three space[d] apart flexures (60) wherein

the connector kinematically connects the device holder to the carrier. The connector assembly includes three protrusions and three receivers (see Fig. 8). Horikawa also discloses a device table (220) wherein the carrier is coupled to the table and the stage mover moves the table (col. 11, lines 39-67) and the carrier is rotatable relative to the device table (col. 12, lines 50-55)." Further, with regard to claim 123, the Examiner states that "Horikawa discloses a stage assembly that holds a device (W), the stage assembly comprising a device table (230), a device holder (240), the device holder coupled to the device table (Fig. 8) and a holder damper assembly (60, 52) for damping vibration between the device holder and the device table (col. 12, lines 42-62)."

The Applicants provide that Horikawa et al. is directed to a stage apparatus 200 including a base 210, a Y-stage 220 mounted on the base 210 and movable in the Y direction, an X-stage 230 mounted on the Y-stage 220 and movable in the X direction, a table 240 supported on the X-stage 230 with a plurality of flexures 60 and support bars 52a, 52b and capable of only minute motion with six degrees of freedom, and a wafer holder 25 that carries a wafer W mounted on the table 24. The flexures 60 are used as resilient members for constraining the position of the table 240 relative to the X-stage 230, for reducing any reaction forces acting on the table 240, and for minimizing any deformation of the table 240. (Horikawa et al. Abstract, column 1, lines 5-8, column 9, lines 3-12, column 11, lines 35-67, column 12, line 42 through column 13, line 17, and in Figures 7 and 8).

However, Horikawa et al. does not disclose a stage apparatus comprising a stage base, a device table movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis, a carrier coupled to the device table and movable relative to the device table, a device holder that retains the device, and either a holder connector assembly that connects the device holder to the carrier or a holder damper assembly for damping vibration between the device holder and the device table. Additionally, Horikawa et al. does not disclose a carrier that rotates relative to the device table at least approximately five degrees.

In distinction to Horikawa et al., amended claim 1 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table being movable relative to the stage base along a first axis and along a second axis that is

orthogonal to the first axis; a carrier coupled to the device table and being movable relative to the device table; a device holder that retains the device; and a holder connector assembly that connects the device holder to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Horikawa et al. does not disclose all of the elements of amended claim 1, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 2-6, 12-19 and 31-34 depend either directly or indirectly upon amended claim 1, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Further, in distinction to Horikawa et al., amended claim 66 recites "[a] stage assembly that holds a device, the stage assembly comprising: a device table; a carrier that is coupled to the device table, the carrier rotating relative to the device table at least approximately five degrees between a first position and a second position; a device holder that retains the device; and a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a flexure."

Because Horikawa et al. does not disclose all of the elements of amended claim 66, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 67-73 and 82-85 depend either directly or indirectly upon amended claim 66, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Additionally, in distinction to Horikawa et al., amended claim 106 recites "[a] method for making a stage assembly that holds a device, the method comprising the steps of: providing a stage base; providing a device table that is movable along a first axis and along a second axis that is orthogonal to the first axis relative to the stage base; connecting a carrier to the device table, the carrier being movable relative to the device table; and connecting a device holder that retains the device to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Horikawa et al. does not disclose all of the elements of amended claim 106, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 107-109, 113-115 and 120-122 depend either directly or indirectly upon amended claim 106, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Still further, in distinction to Horikawa et al., amended claim 123 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table that is movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a device holder that retains the device, the device holder being coupled to the device table, the device holder rotating relative to the device table at least approximately five degrees; and a holder damper assembly for damping vibration between the device holder and the device table."

Because Horikawa et al. does not disclose all of the elements of amended claim 123, the § 102(b) rejection is unsupported by the art and should be withdrawn. Because claims 124-130, 137, 138, 140, 141 and 143-145 depend either directly or indirectly upon amended claim 123, the § 102(b) rejection of these claims is also unsupported by the art and should be withdrawn.

Rejections Under 35 U.S.C. § 102(e)

Claims 1, 2, 4, 5, 12-14, 16-20, 27-36, 38, 45-51, 59-66, 68, 69, 71-74, 79-85, 106-109, 113, 114, 116, 118-127, 129, 130 and 137-145 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Korenaga et al. (U.S. Patent No. 6,570,645). The Applicants respectfully submit that the rejection of claims 1, 35, 66, 106 and 123, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner provides that "Korenaga discloses in Fig. 8, a method for making a s[t]age assembly and a stage assembly that holds a device (wafer) the stage assembly comprising a carrier (563), a device holder (501) that retains the device, a holder connector assembly (580, 581) that connects the holder bottom to the carrier top so that defo[r]mation of the carrier does not result in deformation of the device holder (col. 24, lines 36-45). The connector assembly includes a flexures (sic) (581) wherein the connector kinematically connects the device holder to the carrier. Korenaga also discloses a device table (551, 562, 564) wherein the carrier is coupled to the table and the stage mover moves the table (Fig. 8) and the carrier is rotatable relative to the device table (col. 26, lines 55-65). Korenaga discloses a holder damper assembly including magnet generating flux that dampen vibration (580, 581, col. 23, line 36-col. 26,

lines 65) for damping vibration between the device holder and the device table (col. 12, lines 42-62)."

Further, with regard to claim 123, the Examiner asserts that "Korenaga discloses a stage assembly that holds a device (wafer), the stage assembly comprising a device table (563), a device holder (501), a device holder coupled to the device table (Fig. 8) and a holder damper assembly including magnet generating flux to dampen vibration (580, 581, col. 23, line 36-col. 26, lines 65) for damping vibration between the device holder and the device table (col. 12, lines 42-62)."

The Applicants provide that Korenaga et al. is directed to a stage system comprising a base table 502; a Y stage 551 slidable in the Y direction, supported by an air slide and Y yaw guide 550 above the base table 502; an X stage 561 slidable in the X direction, supported by an air slide and X yaw guides 552 above the base table 502; and a wafer top plate 501 having a wafer chuck 571 to retain a wafer, the wafer top plate movable in six degrees of freedom for fine positioning of the wafer.

The X stage 561, including X stage side plates 562, X stage top plate 563, and X stage bottom plate 564, moves in the Y direction with the Y stage 551 and moves in the X direction relative to the Y stage 551. A fine-motion actuator comprising a fine-motion linear motor 503 and an electromagnet 508 produces a driving force between the X stage 561 and the wafer top plate 501 for minutely moving the wafer top plate 501 relative to the X stage 561. The fine-motion linear motor 503 includes eight linear motor moving elements 504 mounted on the bottom face of the wafer top plate 501 and stators 505 mounted on the top of the X stage top plate 563 that cooperate so that substantially no rotational force about the X axis, the Y axis or the Z axis acts on the wafer top plate 501. Additionally, the wafer top plate 501 is supported above the X stage 561 with a supporting cylindrical member 580 and a weight compensating spring 581 disposed inside the central hollow portion of the supporting cylindrical member 580 so that transmission of vibration from the X stage 561 to the wafer top plate 501 through the spring 581 can be disregarded. (Korenaga et al. column 21, line 42 through column 22, line 59, column 23, lines 32 through column 25, line 57, and in Figures 8-10).

However, Korenaga et al. does not disclose a stage apparatus comprising a stage base, a device table movable relative to the stage base along a first axis and along a

second axis that is orthogonal to the first axis, a carrier coupled to the device table and movable relative to the device table, a device holder that retains the device, and either a holder connector assembly that connects the device holder to the carrier or a holder damper assembly for damping vibration between the device holder and the device table. Additionally, Korenaga et al. does not disclose a carrier that rotates relative to the device table at least approximately five degrees.

In distinction to Korenaga et al., amended claim 1 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table being movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a carrier coupled to the device table and being movable relative to the device table; a device holder that retains the device; and a holder connector assembly that connects the device holder to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Korenaga et al. does not disclose all of the elements of amended claim 1, the § 102(e) rejection is unsupported by the art and should be withdrawn. Because claims 2, 4, 5, 12-14, 16-20 and 27-34 depend either directly or indirectly upon amended claim 1, the § 102(e) rejection of these claims is also unsupported by the art and should be withdrawn.

Moreover, in distinction to Korenaga et al., amended claim 35 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table being movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a carrier coupled to the device table and movable relative to the device table; a device holder that retains the device; a holder connector assembly that connects the device holder to the carrier so that deformation of the carrier does not result in deformation of the device holder; and a holder damper assembly connected to at least one of the device holder and the carrier, the holder damper damping vibration between the device holder and the carrier."

Because Korenaga et al. does not disclose all of the elements of amended claim 35, the § 102(e) rejection is unsupported by the art and should be withdrawn. Because claims 36, 38, 45-51 and 59-65 depend either directly or indirectly upon amended claim 35, the § 102(e) rejection of these claims is also unsupported by the art and should be

withdrawn.

Further, in distinction to Korenaga et al., amended claim 66 recites "[a] stage assembly that holds a device, the stage assembly comprising: a device table; a carrier that is coupled to the device table, the carrier rotating relative to the device table at least approximately five degrees between a first position and a second position; a device holder that retains the device; and a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a flexure."

Because Korenaga et al. does not disclose all of the elements of amended claim 66, the § 102(e) rejection is unsupported by the art and should be withdrawn. Because claims 68, 69, 71-74 and 79-85 depend either directly or indirectly upon amended claim 66, the § 102(e) rejection of these claims is also unsupported by the art and should be withdrawn.

Additionally, in distinction to Korenaga et al., amended claim 106 recites "[a] method for making a stage assembly that holds a device, the method comprising the steps of: providing a stage base; providing a device table that is movable along a first axis and along a second axis that is orthogonal to the first axis relative to the stage base; connecting a carrier to the device table, the carrier being movable relative to the device table; and connecting a device holder that retains the device to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Korenaga et al. does not disclose all of the elements of amended claim 106, the § 102(e) rejection is unsupported by the art and should be withdrawn. Because claims 107-109, 113, 114, 116 and 118-122 depend either directly or indirectly upon amended claim 106, the § 102(e) rejection of these claims is also unsupported by the art and should be withdrawn.

Still further, in distinction to Korenaga et al., amended claim 123 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table that is movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a device holder that retains the device, the device holder being coupled to the device table, the device holder rotating relative to the device table at least approximately five degrees; and a holder damper assembly for damping vibration between the device holder and the device table."

Because Korenaga et al. does not disclose all of the elements of amended claim 123, the § 102(e) rejection is unsupported by the art and should be withdrawn. Because claims 124-127, 129, 130 and 137-145 depend either directly or indirectly upon amended claim 123, the § 102(e) rejection of these claims is also unsupported by the art and should be withdrawn.

Rejections Under 35 U.S.C. § 102(a)

Claims 1, 7, 8, 32-34, 66, 83-88, 103-106, 110, 120-124 and 143-145 have been rejected under 35 U.S.C. § 102(a) as being anticipated by Lee (U.S. Patent Application Publication No. 2001/0019250). The Applicants respectfully submit that the rejection of claims 1, 66, 86, 106 and 123, as amended, is unsupported by the art and should be withdrawn.

More particularly, the Examiner asserts that "Lee discloses in Fig. 2 and 3, a method of making a s[t]age assembly and a stage assembly that holds a device (24) the stage assembly comprising a carrier (32), a device holder (10) that retains the device, a holder connector assembly (36) made of three fluid assemblies that connects the holder bottom to the carrier top so that defo[r]mation of the carrier does not result in deformation of the device holder (para 0024, 0011)." Further, with regard to claim 123, the Examiner states that "Lee discloses a stage assembly that holds a device (24), the stage assembly comprising a device table (32), a device holder (10), the device holder coupled to the device table and a holder damper assembly (36) for damping vibration between the device holder and the device table (para 0024)."

The Applicants provide that Lee is directed to a stage mechanism comprising a stage 10 movable in the X-Y plane that is supported on a base structure 32 via air bearings 36A, 36B, 36C to minimize friction. A reticle 24 is located on stage 10 and held by a vacuum groove 26 formed in the upper surface of a chuck plate 28. (Lee paragraphs 0007, 0011, 0023, 0024, and in Figures 1 and 2).

However, Lee does not disclose a stage apparatus comprising a stage base, a device table movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis, a carrier coupled to the device table and movable relative to the device table, a device holder that retains the device, and either a holder connector assembly that connects the device holder to the carrier or a holder damper

assembly for damping vibration between the device holder and the device table. Additionally, Lee does not disclose a carrier that rotates relative to the device table at least approximately five degrees.

In distinction to Lee, amended claim 1 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table being movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a carrier coupled to the device table and being movable relative to the device table; a device holder that retains the device; and a holder connector assembly that connects the device holder to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Lee does not disclose all of the elements of amended claim 1, the § 102(a) rejection is unsupported by the art and should be withdrawn. Because claims 7, 8 and 32-34 depend either directly or indirectly upon amended claim 1, the § 102(a) rejection of these claims is also unsupported by the art and should be withdrawn.

Further, in distinction to Lee, amended claim 66 recites "[a] stage assembly that holds a device, the stage assembly comprising: a device table; a carrier that is coupled to the device table, the carrier rotating relative to the device table at least approximately five degrees between a first position and a second position; a device holder that retains the device; and a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a flexure."

Because Lee does not disclose all of the elements of amended claim 66, the § 102(a) rejection is unsupported by the art and should be withdrawn. Because claims 83-85 depend either directly or indirectly upon amended claim 66, the § 102(a) rejection of these claims is also unsupported by the art and should be withdrawn.

Further, in distinction to Lee, amended claim 86 recites "[a] stage assembly that holds a device, the stage assembly comprising: a device table that is movable along a first axis and along a second axis that is orthogonal to the first axis; a carrier that is coupled to the device table and moves relative to the device table; a device holder that retains the device; and a holder connector assembly that directly connects the device holder to the carrier, the holder connector assembly including a fluid bearing."

Because Lee does not disclose all of the elements of amended claim 86, the §

102(a) rejection is unsupported by the art and should be withdrawn. Because claims 87, 88 and 103-105 depend either directly or indirectly upon amended claim 86, the § 102(a) rejection of these claims is also unsupported by the art and should be withdrawn.

Additionally, in distinction to Lee, amended claim 106 recites "[a] method for making a stage assembly that holds a device, the method comprising the steps of: providing a stage base; providing a device table that is movable along a first axis and along a second axis that is orthogonal to the first axis relative to the stage base; connecting a carrier to the device table, the carrier being movable relative to the device table; and connecting a device holder that retains the device to the carrier so that deformation of the carrier does not result in deformation of the device holder."

Because Lee does not disclose all of the elements of amended claim 106, the § 102(a) rejection is unsupported by the art and should be withdrawn. Because claims 110 and 120-122 depend either directly or indirectly upon amended claim 106, the § 102(a) rejection of these claims is also unsupported by the art and should be withdrawn.

Still further, in distinction to Lee, amended claim 123 recites "[a] stage assembly that holds a device, the stage assembly comprising: a stage base; a device table that is movable relative to the stage base along a first axis and along a second axis that is orthogonal to the first axis; a device holder that retains the device, the device holder being coupled to the device table, the device holder rotating relative to the device table at least approximately five degrees; and a holder damper assembly for damping vibration between the device holder and the device table."

Because Lee does not disclose all of the elements of amended claim 123, the § 102(a) rejection is unsupported by the art and should be withdrawn. Because claims 124 and 143-145 depend either directly or indirectly upon amended claim 123, the § 102(a) rejection of these claims is also unsupported by the art and should be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 9-11, 89-91, 111 and 112

Claims 9-11, 89-91, 111 and 112 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Usui (U.S. Patent Application Publication No. 2002/0126923).

As noted above, the rejection of amended claims 1, 86 and 106 is unsupported by the art. Therefore, amended claims 1, 86 and 106 negate a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 9-11, which indirectly depend from claim 1, claims 89-91, which indirectly depend from claim 86, and claims 111 and 112, which indirectly depend from claim 106, are patentably distinguishable over the cited combination of references.

Claims 40 and 41

Claims 40 and 41 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Korenaga et al. in view of Lee.

As noted above, the rejection of amended claim 35 is unsupported by the art. Therefore, amended claim 35 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 40 and 41, which directly or indirectly depend from claim 35, are patentably distinguishable over the cited combination of references.

Claims 42-44

Claims 42-44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Korenaga et al. in view of Lee as applied to claim 41 above, and further in view of Usui.

As noted above, the rejection of amended claim 35 is unsupported by the art. Therefore, amended claim 35 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 42-44, which indirectly depend from claim 35, are patentably distinguishable over the cited combination of references.

Claims 37 and 39

Claims 37 and 39 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Korenaga et al. in view of Horikawa et al.

As noted above, the rejection of amended claim 35 is unsupported by the art. Therefore, amended claim 35 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 37 and 39, which directly or

indirectly depend from claim 35, are patentably distinguishable over the cited combination of references.

Claims 92-96

Claims 92-96 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Horikawa et al.

As noted above, the rejection of amended claim 86 is unsupported by the art. Therefore, amended claim 86 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 92-96, which directly or indirectly depend from claim 86, are patentably distinguishable over the cited combination of references.

Claim 97

Claim 97 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Korenaga et al.

As noted above, the rejection of amended claim 86 is unsupported by the art. Therefore, amended claim 86 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claim 97, which directly depends from claim 86, is patentably distinguishable over the cited combination of references.

Claims 21-26, 75-78, 116, 117, 119 and 131-136

Claims 21-26, 75-78, 116, 117, 119 and 131-136 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Horikawa et al. in view of Chen (U.S. Patent No. 6,420,475).

As noted above, the rejection of amended claims 1, 66, 106 and 123 is unsupported by the art. Therefore, amended claims 1, 66, 106 and 123 negate a prima facie showing of obviousness with respect to the cited reference. Accordingly, claims 21-26, which depend from claim 1, claims 75-78, which depend from claim 66, claims 116, 117 and 119, which depend from claim 106, and claims 131-136, which depend from claim 123, are patentably distinguishable over the cited combination of references.

Claims 52-58

Claims 52-58 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Korenaga et al. in view of Chen.

As noted above, the rejection of amended claim 35 is unsupported by the art. Therefore, amended claim 35 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 52-58, which directly or indirectly depend from claim 35, are patentably distinguishable over the cited combination of references.

Claims 98-102

Claims 98-102 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Chen.

As noted above, the rejection of amended claim 86 is unsupported by the art. Therefore, amended claim 86 negates a prima facie showing of obviousness with respect to the cited combination of references. Accordingly, claims 98-102, which indirectly depend from claim 86, are patentably distinguishable over the cited combination of references.